

## **ABSTRACT**

A hybrid piston engine-pulsed detonation engine structure is provided for obtaining shaft power from a pulsed detonation engine wherein a piston engine operatively connected to a PDE. A deflagration to detonation transition is used to achieve detonations. The piston engine has a piston that is located in the deflagration region of the deflagration to detonation transition. The hybrid engine has a critical starting frequency, above which the engine will self-actuate and produce excess power.